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ABSTRACT

During the past 4 years block scheduling has been adopted by a majority of the high schools in Middle Tennessee. This paper presents findings of a study that explored the effects of the new schedule. Data were gathered from a questionnaire that was completed by 280 teachers and approximately 2,000 students from 6 high schools in the region. Both students and faculty expressed satisfaction with the block schedule and said that school climate had improved somewhat. Female teachers and female students spent more time than male teachers and male students in preparing for classes. Thirty percent of the total sample reported that grades had improved, and 40 percent reported an increase in paperwork. The new schedule appeared to have no significant effect on attendance. Teachers generally agreed that they would need to revise their teaching methods. Both groups indicated that block scheduling provides students with the opportunity for in-depth study of subject matter. However, this might be possibly at the expense of covering more material. Five tables and a copy of the questionnaire are included. (Contains 26 references.) (LMI)

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ED 403 647

A STUDY OF THE BLOCK SCHEDULING MOVEMENT IN SIX HIGH SCHOOLS IN THE UPPER CUMBERLAND REGION OF TENNESSEE

a paper

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ABSTRACT

One of the latest reform movements to arrive for the secondary schools is known as block scheduling. During the past four years it has been adopted by a plurality of the secondary high schools in Middle Tennessee. The major questions which are addressed in this presentation are related to whether the movement has produced improvement in the schools. A review of the research literature reveals mixed results with some studies indicating no difference and others indicating slight improvements in achievement. Both students and faculty appear to be satisfied with the movement according to the results from a survey of students and teachers in six high schools in the region. The literature review indicates that this is also true of most other schools which have changed to the block scheduling format throughout the country. School climate seems to be improved with the new scheduling format.

There seems to be a consensus that teachers working on block scheduling will need to revise their methods to fit the larger block of time. There also is considerable support for the notion that students may have the opportunity for studying subject matter more in depth. This can be at the expense of covering less materials unless the curriculum is spread over more than one semester. Some subjects such as algebra I are being taught intensely over a full year.

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A STUDY OF THE BLOCK SCHEDULING MOVEMENT IN SIX HIGH SCHOOLS IN THE UPPER CUMBERLAND REGION OF TENNESSEE

INTRODUCTION

Reform and panaceas have been pressed into operation in the schools of the nation for decades. Some of these have effected some lasting change on the schools and many of them have not even been remembered a decade later. We have built classrooms without walls and in less than a decade built partitions for these buildings. Committee after committee has studied the public schools and report after report has followed, each filled with recommendations. The real effects in the average classroom have been minimal when compared to the hoopla raised by these ventures.

The modern science and modern mathematics movement became the driving forces for the development of millions of dollars worth of new curriculum materials. Courses which were developed and introduced in the schools numbered in the dozens. Schools that could afford them (the writer's guess is about one-fourth) adopted them but the curricula seldom reached the masses of other schools in the country. As soon as the money and the politics supporting these curriculum movements vanished in the mid-1970's the programs were seldom heard of after that. Unfortunately two decades of excellent work was almost forgotten as the back to the basics movement and other panaceas dominated the reform movements of the 1980s. Now in the 1990's modern efforts in science education are rediscovering much of the same concerns that led to the development of inquiry, laboratory experiences, and higher order thinking experiences during the the 1960s and 1970s. Thus the magic cycle of change in emphasis from the school priorities dominating one era of time to another returns again with a similar vent after approximately 20 years. i.e. What has caused the science scores to drop so drastically during the era of the back to basics movement? Solution, we need new guidelines for teaching science in the schools.

After one hundred years of one panacea followed by another panacea the basic structure of the secondary school is still essentially the same as it was a century ago. Regarding this statement Murphy said "The schools of the 1990s are the schools of the 1890s with a fresh coat of paint. They are pony express institutions trying to make it in a high-tech world. ... Low standards, too little time, anemic content, and irrelevant tests make for a dull system these days. We cling tightly to arcane structures and practices,

despite the fact that American education is choking on mediocrity." (Murphy, 1993)

There are many writers who believe that a fundamental change in the way we view schooling is essential as we adapt to the rapid changes that confront us in the world in which we live. Will these individuals be heard and changes be made or will most innovations still be within the same framework as we have seen for the 1900s? Will the famous Carnegie Unit, the concept of grading and evaluation, and the concept of grade level structure still dominate what we do in the 21st century?

Some writers are indicating that full reform should be implemented in the secondary schools of America. Gordon Cawelti indicates that school reform should include seven components: Performance Standards, Authentic Assessment, Interdisciplinary Curriculum, School Based Decision-Making Teams, Block Scheduling, Business/Industry Alliances, and Technology. (Cawelti, 1995, p. 4-5) This paper addresses only one of these: Block Scheduling. Any cursory review of the literature will reveal that this is not a concept with a singular definition. However, the model being introduced in the Upper Cumberland Region of Tennessee seems to be essentially a 4X4 plan where fixed 90 minute schedules are planned for a maximum of four periods per day. Teachers teach for three of these four periods and students take four classes - one for each period. Most classes are scheduled for only one semester but there are some modifications where a full year is taken for a course.

The introduction of the Copernican Plan by Carroll serves as one example of an attempt to restructure education. (Carroll, 1987) Carroll used the revolutionary leadership of Nicholas Copernicus as a parallel notion to the present need to revolutionize the educational system in America's schools. He recommends that we apply what has been learned through effective schools research to change the way we run today's schools. Carroll further states: "The Copernican Plan is a way to organize high schools on the basis of research and experience concerning more effective and efficient instruction. Research indicates that large-block scheduling has proven to be very successful. In the plan, each student will enroll in one class at a time for about 4 hours each day for a period of 30 days." (Carroll, 1987) With this high concentration on a single subject there is also an emphasis on the progress of the individual versus the group. The results from the evaluation of eight high schools which have employed the Copernican Plan is reported by Carroll in an article in Phi Delta Kappan. (Carroll, 1994) These are discussed in the literature review section of this paper.

Block scheduling is one of the latest reform movements to arrive for the secondary schools. This idea has surfaced in one form or another over the past forty years with the first major thrust initiated by Lloyd Trump and others in the early 1960's. (Trump and Baynham, 1961) Their major emphases on reform centered on flexible block scheduling and team teaching. Though some schools adopted their format the movement did not become a major thrust throughout the nation until recently. There are a number of cases recorded where community colleges, private colleges, and others used some form of their ideas. The new version of the movement which is based on a somewhat nonflexible format of 90 minute periods has been adopted within the past four years by a plurality of the secondary high schools in Middle Tennessee. There is little resemblance between the new 4X4 movement relating to block scheduling and the original plan advocated by Trump. The Trump model may be more characteristic of the block scheduling emphasis now being promoted in the middle school rather than the high school level.

The intent of this presentation was to focus on the 4X 4 block scheduling movement to determine if improvement in the schools has resulted as a consequence of the changes to block scheduling. A study of the literature pertaining to the many forms of block scheduling are cited in this report. Many of the reports are directed to attendance, suspensions, and dropout rates rather than to achievement. The review of the literature reflects the results from the sources reviewed. The data included in this report deals only with attitudinal assessment via a questionnaire. Further research regarding achievement and other quantitative components should be done in the near future.

REVIEW OF RELATED LITERATURE

This presentation of the literature includes some of the studies that have been reported over the past 30 years. These findings came from two searches - an online search of the E.R.I.C. database which covers from 1966 to the present and a search of the database for Dissertation Abstracts International covering the last 10 years. The online search of the E.R.I.C. database gave 89 articles where the name block or block scheduling appeared under the keyword search. Some of the articles did not pertain to block scheduling but to other uses of the word block. Also, some of the sources revealed little of substance when evaluated for actual research content. Following is an abbreviated coverage of the research articles. The first four citations are

recommended readings on the subject that give a comprehensive analysis of the research findings plus additional informative information on the subject.

A book by Canady and Rettig provides excellent background information relating to block scheduling and descriptions of alternative types of block schedules. Details relating to steps for implementing various forms of block scheduling are discussed. (Canady and Rettig , 1995)

A very brief article by Karen Irmsher summarizes reasons for moving to block scheduling and related concerns when preparing for the change. One of the advantages indicated by her is, "Larger blocks of time allow for a more flexible and productive classroom environment, along with more opportunities for using varied and interactive teaching methods." (Irmsher, 1996) A brief review of some of the literature is also cited by her.

An excellent source which should be read by anyone who has a serious interest in block scheduling has been published by Karen Fallon under the title Intensive Education. Similar to the Copernican Plan she describes Intensive Education as, "organizing the school's schedule so that the day is more effectively and efficiently utilized: students study and teachers teach one subject for a period of 30 days. Students stay with one teacher four hours a day, and teachers teach just the one four hour academic class each day." (Fallon, 1995) Both Intensive Education and the Copernican Plan are very much related to what transpires in many summer school programs. Fallon covers the literature citing almost all of the references found by this writer. She offers substantial support that indicates that intensive block scheduling reduces class size at no additional expense to the school system. It further strengthens the relationship and positive ties between teachers and students while improving such areas as moral and social reasoning. Due to class study opportunities that increased student interest through varied instructional methods teachers are able to deal with higher level collaborative reasoning resulting in increased scores on these measures. Her survey of the literature relating to academic achievement indicates that comparisons show mixed results with some studies indicating no difference and others indicating significant gains in achievement. A few studies are cited where the traditional program produced higher achievement scores. From these studies relating to academic achievement Fallon indicates some concern regarding the status of the research findings though many of the studies favor the block

scheduling format. She states that , "A good experimental study is needed using public high school students ... during the regular school year." (Fallon, 1995)

Fallon further indicates that studies indicate that student suspensions, attendance, failures, and dropout rates are improved under block scheduling. However, it is noted that much of the literature cited on this subject by her pertains to colleges and community colleges. Further study is still needed in regular secondary programs in these areas. (Fallon, 1995)

A recent study by Kramer reported in the Mathematics Teacher, (Kramer, 1996), is an interesting and exaustive study of block scheduling plans including the use of the plan under another term known as the semestered system. In this review Kramer indicates that there is a definite need to alter the form of instruction when moving into a block scheduling plan and that teachers of mathematics may be less likely to change their methods of teaching. Concern is also indicated regarding the coverage of content in mathematics courses. However, there are some indications that greater depth is covered rather than more content. Other articles reviewed indicated that there is a need to restudy the mathematics curriculum offerings when block scheduling is implemented. Many individuals believe that algebra I should be taught over an entire year even with the extended 90 minute periods.

Kramer's discussion of mathematics achievement under block scheduling included similar reflections of other authors. Most studies indicate no significant differences on mathematics test scores though there is some indication that students are making better grades. Complications in studying academic performance include factors such as more students are enrolling in mathematics courses thus changing the overall ability levels of the group. Also factors relating to testing and other reserach conditions are discussed thoroughly by Kramer. (Kramer, 1996) When this is combined with the trend to cover fewer topics indepth versus more topics one may infer that no significant difference may be good news under these circumstances.

A study pertaining to seventh grade math students who were under a block scheduling format is reported by Gwen Schroth and Jean Dixon. This article summarizes a number of the same sources cited by Fallon and others who have studied the use of block scheduling. Their study reports results from a comparison of test scores from two middle school seventh grade programs, one under block scheduling and the other under the traditional 50 minute periods. Though slight

differences in scores and gains occurred they were not significant from school to school and from year to year. Neither was there a trend favoring a particular school or year. This was true for both lower achieving students and for higher achieving students. (Schroth and Dixon, 1995)

Thomas R. Guskey and Edward Kifer describe an interim evaluation of a Block Schedule Restructuring Program in Maryland. A number of different things were used in evaluating the program. When contrasting the pass rates for 1991-92, the year prior to block scheduling, with the pass rates in 1992-93, the year with block scheduling, there was insignificant change when comparing each of the areas of reading, mathematics, writing, and citizenship scores over the two years. They further report that comparisons over the two years on a local summative test used for graduation "showed only minor fluctuations." When advanced placement scores were compared there was a 30% increase in the number of students taking the tests and a 20% increase in the number scoring '3' or above on the tests. The most noticeable gains were reflected in composition (15%) and in U.S. History (14%) with minor gains in AP Physics (5%) and AP Biology (2%). However, those scoring '3' and above on AP Calculus dropped by 7% and those in AP literature dropped 4%. (Guskey and Kifer, 1995)

Guskey and Kifer further note that PSAT and ACT tests taken at mid-year of the first academic year under block scheduling were highest in eight years but still basically "unchanged after introduction of the Block Schedule Program." Also more students took the test than in previous years. Grade distribution averages over the two years and including the fall semester 1993-94. remained essentially the same, going from 2.71 in 1991-92 to 2.78 in 1992-93 then to 2.71 during the fall semester 1993-94. They further report that "the percent of students dropping out of school remained relatively stable with the implementation of the Block Schedule Program." (Guskey and Kifer, 1995, pp. 10-13)

One area where dramatic improvement was noted by Guskey and Kifer was student behavior. The number of suspensions dropped by only 1% but the overall number of office referrals dropped by 20% and a 30% drop of office referrals was noted for 9th grade students. (Guskey and Kifer, 1995, pp. 13-14)

Data pertaining to African American Students reflected increased scores on the Maryland Functional Tests of 7%, 20.5%, 4.8%, and 21.3% over the two year period in

the respective areas of reading, mathematics, writing, and citizenship. Final grade point averages changed upward from 2.00 to 2.06, attendance rates changed from 86.4 to 87.2 %, office referrals dropped by 14%, and dropout rate increased from 1.6% to 4.1%. (Guskey and Kifer, 1995, pp. 13-14)

Guskey and Kifer also collected attitudinal data from students and teachers. They report that 49% of the students feel they are learning more under block scheduling while only 11% feel they are learning less. Sixty-nine percent of the students indicated they would like to remain on the new system and only 12% indicated they would like to return to the traditional schedule. Sixty-four percent of the teachers felt that their students were doing better on mastery of important concepts while 0% indicated they were doing worse. Ninety-five percent of the teachers indicated they would like to remain on the block schedule program while 0% indicated they would like to return to the 7 period schedule. Teachers also indicated positive responses toward their teacher effectiveness (68%), providing opportunities for students to think critically and analytically (78%), and experiment with new instructional approaches (85%). (Guskey and Kifer, 1995, pp. 14-17)

Louann Reid presented a paper relating to the teaching of English under block scheduling. This study was more qualitative than quantitative. The results from her questionnaire reveal that approximately 90 percent of the teachers are happy with block scheduling. She further reports that there was a mixed reaction from the students regarding whether they had improved in achievement since the block scheduling had been implemented with 43% indicating they had increased and 45% indicating they had either decreased or it had not effected their achievement. The academic area where she was most positive that block scheduling had made a positive difference was in the area of writing. She also discusses more than one form of block scheduling and offers helpful comments to anyone interested in beginning block scheduling. (Reid, 1995)

Cindy McConnell offers a very positive summary relating to research when she notes that "research indicates that schools using block scheduling formats are producing better student-teacher relationships as well as an overall gain in attendance, honor roll members, and test scores. Block scheduling has also decreased failure rates, tardiness, and dropouts." (McConnell, 1996) No documented proof is cited for her conclusions though she cites Costa and Taylor at Muskogee and

Putnam City Public Schools in Oklahoma.

Robert Schoenstein reports his assessment regarding block scheduling of a Colorado high school after a five year period. He indicates that "we've seen an increase in the average daily attendance rate from 91.7 percent to 93.9 percent and an increase in the percentage of students on the honor roll from 20.8 percent to 26.5 percent." (Schoenstein, 1995, p20) He further indicates that failure rate is down from 31 percent failing at least one class to 22 percent the first year after initiating block scheduling and the five year average around 25 percent. The percent of students enrolling in four year colleges and universities increased from 40.4 percent to 50.4 percent from the year prior to the initiation of block scheduling to the fifth year after implementation. Scores of students taking the SAT declined slightly from verbal scores of 455 to 428 while the math scores decreased from 493 to 482. Students who took the ACT verbal scored slightly higher with an average of 20.2, up from 19.8. ACT math scores moved from an average of 20.1 to 20.0. Schoenstein notes extenuating circumstances that make interpretation difficult regarding these scores. (Schoenstein, 1995, p20)

Donald Hackmann addresses school climate in an article relating to the changes in a middle school from a traditional to an alternating day block schedule. A comparison was made between data collected in the 1991-92 year prior to the change and the 1992-93 year after changing to an alternating-day eight-block schedule. He reports improved school climate, a reduction by 57.9 percent of disciplinary referrals, a 60.1 percent decrease in in-school suspensions, a 62 percent decrease in out-of-school suspensions, and an increase in attendance from 92.1 to 94.0 percent. Failing grades decrease and the number of students attaining the honor roll increased. Student approval was 73.8 percent and parent approval was 80.6 percent. (Hackmann, 1995)

Sylvia Cooper provides evaluative data relating to the block scheduling venture in a West Virginia high school. She indicates that ACT Math, ACT Science Reasoning, and ACT Composite scores have remained relatively unchanged over the three years prior to the introduction of block scheduling through the two years following the introduction of the schedule change. On a Comprehensive Test of Basic Skills there is a notable change during the second year (fifth year overall) after changing to block scheduling with an increase of an average of over 5 points from the previous four

years. The first year following block scheduling reflected a slight drop from the previous year but not from the average of the previous three years. She further indicates that other measurements used to assess the quality of the program have remained as strong as prior to the change, "clearly block scheduling has not had any negative effects on our students' ability to do well on outside evaluation instruments ...surveys show definite positive enthusiasm for this change." (Cooper, 1996, p.31)

Patricia Davis-Wiley presented a paper that included findings from survey information from 238 teaches and 10 administrators. She indicates that both teachers and administrators do not want to abandon the block schedule format. She found that staff required more preparation time but used a wider variety of instructional delivery under the four-by-four block schedule. The article also contains survey instruments used in the study. (Davis-Wiley, 1995)

A dissertation by Lee Catherine Cox addressed the use of block scheduling with 'at-risk" high school students. She found that "measures of achievement indicated a significant gain in the blocked core courses from failing to passing grades. No significant gains were observed for attendance, achievement motivation, or for the occurrence of disruptive behavior ... grouping students with one teacher for an extended amount of time ... can be beneficial to the student who is 'at-risk'." Cox, 1995)

Linda Joy Wilson completed a dissertation relating to parallel block scheduling versus surface scheduling. Her results indicated statistically significant differences in mathematics achievement favoring the parallel block scheduling school. No significant differences were found when reading achievement was compared across the two schools. Also student beliefs regarding how well they were learning were significantly higher for the block scheduling group. Though differences in student attitudes toward school were not found, the teachers thought the student attitudes toward school and learning had improved as a result of the block scheduling program. (Wilson, 1995)

Joseph M. Carroll discusses the evaluation of eight high schools which reflect seven different variations in the Copernican Plan or Renpro plan. He indicates that of 74 comparisons between these schools and the traditional school , 49 showed no significant difference in performance, 11 favored the Renpro students, and 14 favored the traditional students. He further indicates that retention was comparable between the groups, and the evaluation relating to higher-order thinking and problem-solving

abilities significantly favored the Renpro students. His remarks in the article definitely challenge the Carnegie Unit and the traditional way of conducting high school programs. (Carroll, 1994, p.108-109)

In an article reflecting letters of opinion in the November 1996 issue of the NCTM Bulletin a series of comments relating to block scheduling indicated diverse views regarding the experiences which were shared. Only one of the letters mentioned research and the views by those who wrote ranged from extremely negative to highly positive. (NCTM, 1996, p.10-11)

An informative article by Clarence M. Edwards, Jr. described the successful 4X4 block scheduling plan in Virginia. He indicated that 94 percent of the teachers and 93 percent of the students favored keeping the block schedule plan after being on it one full year. Further information from his article revealed that a majority of both teachers and students felt there was an improvement in the block scheduling classes. Grades improved with more 'A's being given improving from 21 to 28 percent. Ninth graders improved from 16 percent to 26 percent under block scheduling plan. Placing the AP students in a full year two credit schedule more than doubled the instructional time resulting in an increase of students scoring 4's and 5's from 44 to 58 percent. Achievement scores were not improved over the traditional format after the first year on the 4X4 plan. (Edwards, 1995, p. 26-28)

Huff reports the experiences from a high school in Missouri that used a flexible block scheduling plan. At the end of the year the evaluation indicated that 96 percent of the staff and 79 percent of the students believed the approach superior to the previous year's traditional format. (Huff, 1995, p. 21)

Daniel Buckman studied the effect of block scheduling on school climate and found that 75% or greater of both teachers and students answered positively on a survey designed to measure a number of school climate factors. (Buckman, 1995, p. 14-15)

Embriano and Ryan reported the results from a block scheduling plan which was implemented for underachieving students in a secondary setting. They found that average pupil attendance rose from 55 to 66 percent and 75 percent of the students promoted to higher level classes. The rate of earning credit by the students increased from a low of 0.78 credits/term to 2.5 credits/term after the initial semester. After the end of the year they reached 4.4 credits/term. (Embriano, 1995, p. 43-44)

Clifford Baylis compared student success in block scheduling to regular scheduling environments with community college students in a special social science and writing curriculum. "Post-test scores showed statistically significant advantages in attitudes, learning behaviors, and learning anxiety for the block group over the non-block group ... other indicators favoring the block students over the non-block students included dropout rates (20% vs. 32.5%), absentee rates (4.2% vs. 13.5%), and grade point averages (2.31 vs. 1.31)." The differences in grade point averages were statistically significant at the 0.005 level. (Baylis, 1983, p. 8-10)

Adrian Van Mondfrans completed a study where students in block scheduling were compared with students in a traditional schedule on both achievement and attitude. He reports some significant difference favoring the traditional group but further analysis revealed that the interaction effects across grade levels was the most notable of the findings. Younger students showed more favorable attitudes toward the traditional format while senior level students favored the block scheduling. Since only two of the 30 F-ratios computed show statistical significance he concludes that the two treatments did not differentially affect the variables. (Van Mondfrans, 1972, p.5-6)

Sol Sigurdson conducted a series of evaluations pertaining to a flexible block scheduling program used in Canada. At the end of two years he indicated: "that the students in the Block Plan showed better attitudes toward schooling than did the control group and their class showed higher gains in all achievement areas than did the control group, while average and better students in the treatment group did less well than the control group in language arts. While this attitude change was indicated by the total population, the bottom 35 percent of students seemed to be affected the most. The improved attitude seemed to stem from an improved relationship with the teachers, especially in the second year. The total group, in both treatment years, showed higher gains in all achievement areas than did the control group, while average and better students in the treatment group did less well than the control group in language arts. Teacher satisfaction in the Block Plan was very high." (Sigurdson, 1982, Abstract)

After reviewing these reports it is the conclusion of this writer that the literature indicates that at least two-thirds of both students and faculty appear to be satisfied with the block scheduling movement preferring it over the traditional schedule. It appears that the literature indicates that students do as well academically under the

block scheduling plan as under the traditional scheduling format. The results from the studies indicate mixed and inconclusive findings with few studies favoring the traditional, most studies showing no statistically significant differences, and a number of studies favoring the block scheduling format. This writer agrees with others that well controlled studies relating to achievement over an extended time period of at least two to three years need to be completed.

There seems to be sufficient evidence from the studies that the school climate is improved as a result of changing to a block scheduling format resulting in fewer disciplinary referrals, a slight reduction in suspensions, some decrease in the dropout rate, and some improvement in the number of students on the honor roll. Further indications are that in some instances the Advanced Placement Scores have improved when some form of block scheduling has been initiated. Overall the positives favoring the block scheduling format far outweigh the negatives when both achievement and attitudinal measures are considered. Hence, this writer concludes from the literature review that the movement to some form of block scheduling plan, and there are many versions, is in the best interest of the teachers and the students in secondary school programs. Whether the attitudes are more positive due to the extra energy needed in making the transition or the better relationships that usually develop between students and teachers in the longer class periods are questions not completely answered by these studies. Whatever these factors are that influence success in school, they serve as causes for the improvement in school climate which is evident from these reports. These results cannot be viewed in any way but positive and over time will likely result in increased achievement in the secondary schools.

METHODS

The statistical data included in this study came from a questionnaire completed by 280 teachers and approximately 2000 students. This instrument was developed jointly by the writer and a committee of teachers from one of the high schools cooperating in the study. The writer used the S.A.S. system for running the statistical analyses for the study. The cross tabulation format and the two-way chi squared test for statistical significance was calculated for each of the 14 items. The tables which are included in the report reflect the results from the analyses and answer each of the following null hypotheses:

1. There is no statistically significant (0.05 level) differences between student

and teacher responses for each of the 14 items on the questionnaire.

2. There is no statistically significant (0.05 level) between the responses of teachers by gender for each of the 14 items on the questionnaire.
3. There is no statistically significant (0.05 level) between the responses of students by gender for each of the 14 items on the questionnaire.
4. There is no statistically significant (0.05 level) differences among the responses of teachers from the six high schools for each of the 14 items on the questionnaire.
5. There is no statistically significant (0.05 level) differences among the responses of students from the six high schools for each of the 14 items on the questionnaire.

PRESENTATION OF FINDINGS

The findings from this investigation are reported in a series of five tables. Each table corresponds directly to the five hypotheses written above. A semiformal format is used to enhance the ease of reading for the tables. This format provides for the items and choices for the questionnaire to be included with the results from the comparisons. The results for the test used in determining statistical significance, the chi squared value and the associated level of probability or significance, are listed following each item. TABLE I which follows contains the comparisons between teachers and students on each of the 14 items for the entire sample of 2300 participants. As is indicated in these findings there is a statistically significant difference on several of the items indicating that teachers and students do not view the questionnaire items the same way. Specifically the significant difference found on item 1 indicates that teachers spend significantly more time out of class than do their students. The most interesting finding relating to this item is that slightly less than one-fourth of the teachers and over 56 percent of the students indicate they spend less than one hour outside of class preparing or studying for classes each day. Also the significant difference found in item 2 indicates that teachers perceive that greater preparation time is required for the block scheduling format more so than do their students. Almost one-half of the teachers compared to slightly under one-third of the students feel that increased time is needed for class preparation compared to the traditional format.

Approximately 30 percent of both students and teachers feel that grades have improved under the block format. Also, approximately 40 percent of both students and

teachers feel that paperwork has increased. Thirty-two percent of the teachers and 45 percent of the students feel that the amount of material covered has increased while 38 percent of the teachers and 25 percent of the students indicated that the amount of materials covered had decreased. The remaining 29 percent, the same for teachers and students, of the responses indicated that the coverage had remained about the same. Forty-four percent of the teachers and 30 percent of the students feel that attendance has improved while 10 percent of the teachers and 13 percent of the students feel that attendance has declined under the block plan. Forty-six percent of the teachers and 56 percent of the students feel that attendance has remained the same.

Student behavior has been affected positively by the block plan according to 37 percent of the teachers and 19 percent of the students. No change in student behavior was indicated by 45 percent of the teachers and 58 percent of the students. Other findings were that seventeen percent of the teachers and 23 percent of the students felt that student behavior had declined under the block plan; two-thirds of the teachers and 55 percent of the students rate the block plan favorable while 76 percent of the teachers and 72 percent of the students indicated they preferred the 90 minute plan over the 55 minute period. Also, over 75 percent of the teachers and 44 percent of the students indicated that more variety in the teaching methods were being employed. An area where negative feedback was received was in student involvement in school activities. Fifty-four percent of the teachers and 48 percent of the students felt that involvement in clubs and extracurricular activities had declined under the block plan.

The comparisons between the responses of male and female teachers produced few significant differences. From these results in TABLE II it is noted that male teachers spend significantly less time than female teachers preparing for classes with 30 percent of the male teachers spending less than one hour per day in preparation while only 15 percent of the female teachers spent less than an hour per day. Thirty-nine percent of male teachers feel that student retention has increased while only 24 percent of the female teachers felt that way. Nineteen percent of each of the groups felt that retention had decreased while 35 percent of the male teachers felt retention had remained the same compared to 48 percent of the female teachers. Though 43 percent of the male and 64 percent of the female teachers felt that club activities had declined under the block plan, 21 percent of the male teachers and only

5 percent of the female teachers indicated that club activity had increased under the new plan.

The comparisons between the responses of male and female students produced several statistically significant differences. From these results in TABLE III it is noted that male students spend significantly less time than female students in preparing for classes with 66 percent of the male students spending less than one hour per day in preparation while 48 percent of the female teachers spent less than an hour per day. Though there are a number of other instances where statistical significance was found by gender of the student, the actual variations in the percentages are within few percentage points in most cases and not large enough to merit further discussion. The reader is invited to see these differences by scrutinizing TABLE III to see these variations.

TABLE I
RESULTS FROM BLOCK SCHEDULE SURVEY A COMPARISON OF TEACHER AND STUDENT ATTITUDES - FALL 1996 DATA

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY CLASSIFICATION TEACHERS N = 280	STUDENTS N = 2059
1. How much time do you spend per day preparing/ studying for your classes?	less than one hour	23.55	56.57
	between 1 and 3 hours	60.14	38.61
	between 3 and 5 hours	12.68	3.85
	more than 5 hours	3.62	0.97
	Chisq =129.88	Sign.	0.001
2. How does class preparation under block scheduling compare to traditional scheduling?	more prep. is required	46.91	31.45
	about the same prep.	41.45	42.84
	less prep. is required	11.64	25.71
	Chisq = 37.47	Sign.	0.001
3. How would you describe the paperwork/homework involved with block scheduling?	more	41.76	38.64
	the same	32.60	31.07
	less	25.64	30.29
	Chisq = 2.53	Sign.	n.s.
4. What impact has block scheduling had on grades?	grades tend to be higher	27.90	33.27
	grades are ab.the same	46.38	39.33
	grades tend to be lower	13.77	18.95
	not observed	11.96	8.45
	Chisq = 12.10	Sign.	0.007
5. How has block scheduling affected the amount of material covered?	has increased the amt.	32.10	45.09
	amt. is about the same	29.15	29.44
	has decreased the amt.	38.75	25.48
	Chisq = 24.85	Sign.	0.001
6. How has block scheduling affected attendance in your classes?	attend. has improved	43.82	30.10
	attend. is ab. the same	46.07	56.37
	attend. has declined	10.11	13.53
	Chisq. = 20.65	Sign.	0.001
7. How would you describe student behavior?	behavior has improved	37.27	19.10
	no change has occurred	45.39	57.60
	beh. has bec. more neg.	17.34	23.30
	chisq. = 47.24	Sign.	0.001

TABLE I (cont.)
RESULTS FROM BLOCK SCHEDULE SURVEY A COMPARISON OF TEACHER AND STUDENT ATTITUDES - FALL 1996 DATA

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY CLASSIFICATION TEACHERS N = 280	STUDENTS N = 2059
8. Overall, how would you rate block scheduling?	strongly in favor	37.68	17.57
	in favor	34.78	37.79
	indifferent	15.22	25.35
	against	9.06	10.08
	strongly against	3.26	9.20
	Chisq. = 70.54	Sign.	0.001
9. The 90 minutes block time is	too much time on 1 subj.	19.85	42.11
	not aff. by lngth of time	24.05	20.22
	about the right amt. of time on each subject	56.11	37.68
	Chisq. = 50.52	Sign.	0.001
10. Students' retention of information seems to have	increased	29.20	21.68
	remained the same	41.24	38.96
	decreased	19.34	21.93
	not observed	10.22	17.43
	Chisq. = 14.68	Sign.	0.002
11. How have clubs and extracurricular activities been affected?	int. and part. has imp.	11.32	14.58
	is about the same	34.34	37.83
	int. and part.has decl.	54.34	47.60
	Chisq. = 4.71	Sign.	n.s.
12. How has block schedule changed the classroom activities?	great. var. of tea. meth.	75.74	44.74
	no change	17.28	35.76
	less var. of tea. meth.	6.99	19.50
	Chisq. = 92.86	Sign.	0.001
13. Which would you prefer?	six 55 minute classes	23.35	27.24
	four 90 minutes	76.65	72.76
	Chisq. = 1.79	Sign.	n.s.
14. Who benefits from block scheduling?	students	12.27	16.05
	admin. and teachers	21.93	17.72
	everyone	59.11	50.07
	no one	6.69	16.15
	Chisq. = 22.42	Sign.	0.001

TABLE II
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF TEACHERS BY GENDER

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY CLASSIFICATION MALE N = 110	FEMALE N = 160
1. How much time do you spend per day preparing/ studying for your classes?	less than one hour	30.28	15.03
	between 1 and 3 hours	55.05	67.32
	between 3 and 5 hours	11.93	13.73
	more than 5 hours	2.75	3.92
	Chisq = 8.87	Sign.	0.031
2. How does class preparation under block scheduling compare to traditional scheduling?	more prep. is required	48.62	46.05
	about the same prep.	38.53	45.39
	less prep. is required	12.84	8.55
	Chisq = 1.92	Sign.	n.s.
3. How would you describe the paperwork/homework involved with block scheduling?	more	40.00	42.67
	the same	35.45	30.67
	less	24.55	26.67
	Chisq =0.66	Sign.	n.s.
4. What impact has block scheduling had on grades?	grades tend to be higher	30.91	25.66
	grades are ab.the same	40.00	52.63
	grades tend to be lower	13.64	11.84
	not observed	15.45	9.87
	Chisq = 4.58	Sign.	n.s.
5. How has block scheduling affected the amount of material covered?	has increased the amt.	36.11	27.15
	amt. is about the same	25.00	33.11
	has decreased the amt.	38.39	39.74
	Chisq = 3.04	Sign.	n.s.
6. How has block scheduling affected attendance in your classes?	attend. has improved	41.12	46.62
	attend. is ab. the same	50.47	43.24
	attend. has declined	8.41	10.04
	Chisq. = 1.32	Sign.	n.s.
7. How would you describe student behavior?	behavior has improved	45.37	33.33
	no change has occurred	39.81	49.33
	beh. has bec. more neg.	14.81	17.33
	chisq. = 3.87	Sign.	n.s.

TABLE II (cont.)
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF TEACHERS BY GENDER

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY CLASSIFICATION MALE N = 110	FEMALE N = 160
8. Overall, how would you rate block scheduling?	strongly in favor	38.18	38.92
	in favor	30.91	38.82
	indifferent	17.27	12.50
	against	9.09	7.89
	strongly against	4.55	1.97
	Chisq. = 3.62	Sign.	n.s.
9. The 90 minutes block time is	too much time on 1 subj.	23.81	15.65
	not aff. by lngth of time	26.67	21.09
	about the right amt. of time on each subject	49.52	63.27
	Chisq. = 4.97	Sign.	n.s.
10. Students' retention of information seems to have	increased	38.53	23.84
	remained the same	34.86	47.68
	decreased	18.35	19.21
	not observed	8.26	9.27
	Chisq. = 7.11	Sign.	(0.068)n.s.
11. How have clubs and extracurricular activities been affected?	int. and part. has imp.	20.59	4.70
	is about the same	36.27	30.87
	int. and part.has decl.	43.14	64.43
	Chisq. = 19.16	Sign.	0.001
12. How has block schedule changed the classroom activities?	great. var. of tea. meth.	76.85	76.67
	no change	14.81	16.67
	less var. of tea. meth.	8.33	6.67
	Chisq. = 0.37	Sign.	n.s.
13. Which would you prefer?	six 55 minute classes	26.67	19.31
	four 90 minutes	73.33	80.69
	Chisq. = 1.90	Sign.	n.s.
14. Who benefits from block scheduling?	students	16.98	7.33
	admin. and teachers	20.75	20.67
	everyone	55.66	64.67
	no one	6.60	7.33
	Chisq. = 5.98	Sign.	n.s.

TABLE III
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF STUDENTS BY GENDER

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY CLASSIFICATION MALE N = 940	FEMALE N = 1119
1. How much time do you spend per day preparing/ studying for your classes?	less than one hour	65.74	48.16
	between 1 and 3 hours	30.40	46.32
	between 3 and 5 hours	2.90	4.51
	more than 5 hours	0.97	1.01
	Chisq = 63.59	Sign.	0.001
2. How does class preparation under block scheduling compare to traditional scheduling?	more prep. is required	30.96	31.97
	about the same prep.	39.81	45.51
	less prep. is required	29.23	22.52
	Chisq = 12.71	Sign.	0.002
3. How would you describe the paperwork/homework involved with block scheduling?	more	39.68	37.82
	the same	31.61	30.72
	less	28.71	31.46
	Chisq =1.83	Sign.	n.s.
4. What impact has block scheduling had on grades?	grades tend to be higher	32.15	34.78
	grades are ab.the same	37.10	41.35
	grades tend to be lower	20.54	17.21
	not observed	10.22	6.66
	Chisq = 13.89	Sign.	0.003
5. How has block scheduling affected the amount of material covered?	has increased the amt.	44.35	45.61
	amt. is about the same	30.03	29.23
	has decreased the amt.	25.62	25.16
	Chisq = 0.33	Sign.	n.s.
6. How has block scheduling affected attendance in your classes?	attend. has improved	30.88	29.09
	attend. is ab. the same	54.71	58.46
	attend. has declined	14.41	12.45
	Chisq. = 3.18	Sign.	n.s.
7. How would you describe student behavior?	behavior has improved	21.44	17.12
	no change has occurred	56.58	58.79
	beh. has bec. more neg.	21.98	24.09
	chisq. = 6.21	Sign.	0.045

TABLE III (cont.)
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF STUDENTS BY GENDER

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY CLASSIFICATION MALE N = 940	FEMALE N = 1119
8. Overall, how would you rate block scheduling?	strongly in favor	19.55	15.94
	in favor	35.21	40.41
	indifferent	24.95	25.21
	against	9.29	10.66
	strongly against	11.02	7.78
	Chisq. = 13.78	Sign.	0.008
9. The 90 minutes block time is	too much time on 1 subj.	42.72	41.23
	not aff. by lngth of time	22.39	18.57
	about the right amt. of time on each subject	34.89	40.20
	Chisq. = 7.54	Sign.	0.023
10. Students' retention of information seems to have	increased	22.25	20.93
	remained the same	39.20	39.07
	decreased	21.06	22.59
	not observed	17.49	17.41
	Chisq. = 0.94	Sign.	n.s.
11. How have clubs and extracurricular activities been affected?	int. and part. has imp.	16.94	12.70
	is about the same	39.45	36.32
	int. and part.has decl.	43.61	50.98
	Chisq. = 12.98	Sign.	0.002
12. How has block schedule changed the classroom activities?	great. var. of tea. meth.	44.22	45.73
	no change	34.70	36.92
	less var. of tea. meth.	21.08	17.35
	Chisq. = 4.58	Sign.	n.s.
13. Which would you prefer?	six 55 minute classes	28.11	26.26
	four 90 minutes	71.89	73.74
	Chisq. = 0.84	Sign.	n.s.
14. Who benefits from block scheduling?	students	17.64	14.18
	admin. and teachers	17.86	17.52
	everyone	45.78	54.40
	no one	18.72	13.90
	Chisq. = 18.33	Sign.	0.001

TABLE IV and TABLE V include the comparisons across the six high schools, first for the teachers and then for the students. A number of statistically significant differences were calculated and reported in these tables. However, since these comparisons are peripheral to this study these tables are included as appendices to the report and no discussion is offered. The reader is invited to peruse these tables if the information is of interest to them.

DISCUSSION OF FINDINGS

The findings from this study seem to agree with many of the reports cited in the literature review. From these results one can conclude that there is more favorable response to the block plan than to the traditional plan by both teachers and students. Approximately 75 percent of the group favor the block plan over the traditional 55 minute format. It appears from the findings that teachers have been more affected by these changes than their students. The change to the 4X4 block plan has required that teachers drastically alter what they have been doing both in pacing and in instructional methods.

Further study where actual data is collected from the records versus opinion on a questionnaire will answer questions pertaining to attendance, office disciplinary referrals, suspensions, and school dropout rates. A comprehensive study comparing achievement over the four years prior to the implementation of the plan with data for the four years following the change to the 4X4 block plan should be completed. Perhaps a wider selection of the schools in the State of Tennessee can be used so that generalizations can be made to the entire state.

REFERENCES

Clifford A. Baylis, Jr., "Summary of an Investigation into the Relative Effects on Student Performance on a "Block" vs. a "Non-Block" Scheduled Development Semester: Pretest-Posttest Control Group Design," ERIC Document, Feb 1983, 12p, ED244711.

Daniel C. Buckman, "Block Scheduling: A Means to Improve School Climate,"NASSP Bulletin, v79, n571, p9-18, May 1995.

"Building Block or Stumbling Block?", NCTM Bulletin, Nov. 1996, p. 10-11.

Robert Lynn Canady and Michael D.Rettig. Block Scheduling: A Catalyst for Change in High Schools. Eye on Education, P.O. Box 3113, Princeton, NJ 08543. 1995. 266p.

Joseph M. Carroll, "The Copernican Plan: A Concept Paper for Restructuring High Schools." Paper presented at the Annual Meeting of the American Association of School Administrators (New Orleans, LA, February 20-23, 1987). ED281308

Joseph M. Carroll, "The Copernican Plan Evaluated: The Evolution of a Revolution," Phi Delta Kappan, October, 1994, pp. 105-113..

Gordon Cawelti, "High School Restructuring: What Are the Critical Elements?,"NASSP Bulletin, v79 n,569, p1-15, Mar 1995.

Lee Catherine Cox, "A Study of the Effects of a Block Scheduling Program with High School Students Who Are 'at-risk' ," University of Houston, Dissertation Abstracts International, Vol 55, No. 10, p. 3137, April 1995.

Clarence M. Edwards, Jr., "Virginia's 4 x 4 High Schools: High School, College, and More," NASSP Bulletin, v79, n571, p23-41, May 1995.

Anthony J. Embriano and Mark J. Ryan, "Using Interdisciplinary Block Programming for Underachieving Pupils," NASSP Bulletin, v79, n569, p38-45, Mar 1995.

Karen Fallon, "Intensive Education," Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 18-22, 1995), 67 p., ED385504.

Thomas R. Guskey and Edward Kifer, "Evaluation of a High School Block Schedule Restructuring Program," Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 18-22, 1995). 21p., ED384652.

Donald G. Hackmann, "Improving School Climate: Alternating-Day Block Schedule," Schools in the Middle, Vol. 5, September 1995, p. 28-33.

A. Leroy Huff, "Flexible Block Scheduling: It Works for Us," NASSP Bulletin, v79, n571, p19-22, May 1995.

Karen Irmsher, "Block Scheduling. ERIC Digest, Number 104. ERIC Clearinghouse on Educational Management, Eugene, Oreg., Mar 96, ED393156.

Steven L. Kramer, "Block Scheduling and High School Mathematics Instruction," The Mathematics Teacher, Vol. 89, No. 9, Dec. 1996, pp.758-768.

Cindy McConnell, "Block Scheduling: Planning Instructional Time for Worls Class Quality Schools," NASSP NewsLeader, Vol. 43, No. 7, p.5, March 1996.

John Murphy,, "What's In? What's Out? American Education in the Nineties", Phi Delta Kappan, April, 1993, pp. 641-646.

Louann Reid, "Perceived Effects of Block Scheduling on the Teaching of English. ERIC Document. March 15, 1995, 20 P., ED382950.

Robert Schoenstein, "The New School on the Block," Executive Educator, v17, n8, p18-21, Aug 1995.

Gwen Schroth and Jean Dixon, "The Effects of Block Scheduling on Seventh Grade Math Students. ERIC Document, Sep 95, 13p., ED387887.

Sol E. Sigurdson, "Two Years on the Block Plan. Meeting the Needs of Junior High School Students. Final Report, 1982," Alberta Dept. of Education, Edmonton. Planning and Research Branch.; Edmonton Public School Board (Alberta). Oct 82, 50p, ERIC No. ED225946.

J. Lloyd Trump and Dorsey Baynam. Guide to Better Schools: Focus on Change. Chicago: Rand McNally and Company, 1961.

Adrian P. Van Mondfrans ; And Others, "Comparing Block Scheduling and Traditional Scheduling on Student Achievement and Attitudes," 10p.; Paper presented at the annual convention of the American Educational Research Association (Chicago, Ill., April 1972), ED064369.

Patricia Davis-Wiley and Others, "Block Scheduling in the Secondary Arena: Perceptions from the Inside," 18p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Biloxi, MS, November 8-10, 1995), ED393177.

Linda Joy Wilson, "The Effects of Parallel Block Scheduling Versus Surface Scheduling on Reading and Mathematics Achievement and on Students' Attitudes Toward School and Learning, Ball State University, " Dissertation Abstracts International, Vol 54, No. 11, p. 3989, May 1994.

APPENDIX

1. Questionnaire used in the study

2. TABLE IV - RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA - A COMPARISON OF ATTITUDES OF TEACHERS BY HIGH SCHOOL

3. TABLE V - RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA - A COMPARISON OF ATTITUDES OF STUDENTS BY HIGH SCHOOL

BLOCK SCHEDULE SURVEY

Choose the number that best answers the question and place it in the blank at the left of the item.

__1. How much time do you spend per day preparing/studying for your classes?

1.) less than one hour
2.) between 1 and 3 hours
3.) between 3 and 5 hours
4.) more than 5 hours

__2. How does class preparation under block scheduling compare to traditional scheduling?

1.) more preparation is required
2.) about the same preparation
3.) less preparation is required

__3. How would you describe the paperwork/homework involved with block scheduling?

1.) more 2.) the same 3.) less

__4. What impact has block scheduling had on grades?

1.) grades tend to be higher
2.) grades are about the same
3.) grades tend to be lower
4.) not observed

__5. How has block scheduling affected the amount of material covered?

1.) has increased the amount
2.) the amount is about the same
3.) has decreased the amount

__6. How has block scheduling affected attendance in your classes?

1.) attendance has improved
2.) attendance is about the same
3.) attendance has declined

__7. How would you describe student behavior?

1.) behavior has improved
2.) no change has occurred
3.) behavior has become more negative

__8. Overall, how would you rate block scheduling?

1.) strongly in favor 3.) indifferent 5.) strongly against
2.) in favor 4.) against

__9. The 90 minutes block time is

1.) too much time on one subject
2.) not affected by the length of time
3.) about the right amount of time on each subject

BLOCK SCHEDULE SURVEY (cont.)

__10. Students' retention of information seems to have

1.) increased
2.) remained the same
3.) decreased
4.) not observed

__11. How have clubs and extracurricular activities been affected?

1.) interest and participation has improved
declined
3.) interest and participation has
2.) is about the same

__12. How has block schedule changed the classroom activities?

1.) greater variety of teaching methods
methods
3.) less variety of teaching
2.) no change

__13. Which would you prefer? 1.) six 55 minute classes 2.) four 90 minutes

__14. Who benefits from block scheduling?

1.) students
2.) administration and teachers
3.) everyone
4.) no one

__15. My gender is 1.) male 2.) female

__16. I am a 1.) teacher 2.) student

TABLE IV
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF TEACHERS BY HIGH SCHOOL

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY HIGH SCHOOL CLASSIFICATION					
		SCH. 1 N = 64	SCH. 2 N = 20	SCH. 3 N = 58	SCH. 4 N = 73	SCH.5 N = 34	SCH. 6 N = 28
1. How much time do you spend per day preparing/ studying for your classes?	less than one hour	35.94	10.53	43.10	9.59	8.82	17.86
	between 1 and 3 hours	46.88	84.21	41.38	69.86	70.59	75.00
	between 3 and 5 hours	12.50	5.26	10.34	17.81	14.71	7.14
	more than 5 hours	4.69	0.00	5.17	2.74	5.88	0.00
	Chisq = 40.70		Sign.	0.001			
2. How does class preparation under block scheduling compare to traditional scheduling?	more prep. is required	46.88	42.11	40.35	54.79	58.82	28.57
	about the same prep.	37.50	57.89	40.35	41.10	38.24	46.43
	less prep. is required	15.63	0.00	19.30	4.11	2.94	25.00
	Chisq = 22.39		Sign.	0.013			
3. How would you describe the paperwork/homework involved with block scheduling?	more	40.32	55.00	31.03	52.05	36.36	37.04
	the same	40.32	45.00	24.14	24.66	42.42	33.33
	less	19.35	0.00	44.83	23.29	21.21	29.63
	Chisq =25.43		Sign.	0.005			
4. What impact has block scheduling had on grades?	grades tend to be higher	23.81	35.00	34.48	24.66	26.47	28.57
	grades are ab.the same	50.79	45.00	43.10	49.32	41.18	42.86
	grades tend to be lower	20.63	10.00	5.17	16.14	11.76	14.29
	not observed	4.76	10.00	17.24	9.59	20.59	14.29
	Chisq =15.45		Sign.	n.s.			
5. How has block scheduling affected the amount of material covered?	has increased the amt.	38.33	35.00	49.12	17.81	27.27	25.00
	amt. is about the same	30.00	35.00	22.81	32.88	21.21	35.71
	has decreased the amt.	31.67	30.00	28.07	49.32	51.52	39.29
	Chisq =20.10		Sign.	0.028			
6. How has block scheduling affected attendance in your classes?	attend. has improved	45.16	52.63	31.58	43.66	45.16	59.26
	attend. is ab. the same	40.32	47.37	50.88	52.11	48.39	29.63
	attend. has declined	14.52	0.00	17.54	4.23	6.45	11.11
	Chisq. = 15.81		Sign.	n.s.			

TABLE IV (cont.)
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF TEACHERS BY HIGH SCHOOL

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY HIGH SCHOOL CLASSIFICATION					
		SCH. 1 N = 64	SCH. 2 N = 20	SCH. 3 N = 58	SCH. 4 N = 73	SCH.5 N = 34	SCH. 6 N = 28
7. How would you describe student behavior?	behavior has improved	22.95	55.00	42.86	36.11	42.42	41.38
	no change has occurred	49.18	40.00	46.43	52.78	33.33	34.48
	beh. has bec. more neg.	27.87	5.00	10.71	11.11	24.24	24.14
	chisq. =	19.28	Sign.	0.037			
8. Overall, how would you rate block scheduling?	strongly in favor	28.13	55.00	46.55	36.62	35.29	34.48
	in favor	31.25	25.00	29.31	40.85	41.18	37.93
	indifferent	23.44	15.00	20.69	5.63	14.71	10.34
	against	10.94	5.00	1.72	14.08	5.88	13.79
	strongly against	6.25	0.00	1.72	2.82	2.94	3.45
	Chisq. =	25.76	Sign.	n.s.			
9. The 90 minute block time is	too much time on 1 subj.	21.67	10.00	24.14	16.67	18.75	23.08
	not aff. by lngth of time	38.33	20.00	29.31	4.55	34.38	19.23
	about the right amt. of time on each subject	40.00	70.00	46.55	78.79	46.88	57.69
	Chisq. =	31.07	Sign.	0.001			
10. Students' retention of information seems to have	increased	19.05	25.00	48.28	29.17	24.24	21.43
	remained the same	39.68	65.00	36.21	38.89	42.42	42.86
	decreased	23.81	0.00	6.90	25.00	24.24	28.57
	not observed	17.46	10.00	8.62	6.94	9.09	7.14
	Chisq. =	30.12	Sign.	0.012			
11. How have clubs and extracurricular activities been affected?	int. and part. has imp.	8.06	0.00	26.32	4.55	12.90	10.34
	is about the same	25.81	15.00	40.35	43.94	41.94	24.14
	int. and part.has decl.	66.13	85.00	33.33	51.52	45.16	65.52
	Chisq. =	35.12	Sign.	0.001			

TABLE IV (cont.)
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF TEACHERS BY HIGH SCHOOL

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY HIGH SCHOOL CLASSIFICATION					
		SCH. 1 N = 64	SCH. 2 N = 20	SCH. 3 N = 58	SCH. 4 N = 73	SCH.5 N = 34	SCH. 6 N = 28
12. How has block schedule changed the classroom activities?	great. var. of tea. meth.	67.74	100.00	77.19	69.86	93.94	66.67
	no change	25.81	0.00	15.79	20.55	3.03	22.22
	less var. of tea. meth.	6.45	0.00	7.02	9.59	3.03	11.11
	Chisq. = 18.54		Sign.	0.047			
13. Which would you prefer?	six 55 minute classes	27.27	5.00	32.69	22.22	12.90	25.93
	four 90 minutes	72.73	95.00	67.31	77.78	87.10	74.07
	Chisq. = 8.81		Sign.	n.s.			
14. Who benefits from block scheduling?	students	14.52	5.00	29.82	4.23	6.06	3.85
	admin. and teachers	22.58	15.00	19.30	26.76	24.24	15.38
	everyone	50.00	80.00	47.37	64.79	66.67	65.38
	no one	12.90	0.00	3.51	4.23	3.03	15.38
	Chisq. = 38.27		Sign.	0.001			

TABLE V
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF STUDENTS BY HIGH SCHOOL

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY HIGH SCHOOL CLASSIFICATION					
		SCH. 1 N = 790	SCH. 2 N = 116	SCH. 3 N = 600	SCH. 4 N = 92	SCH.5 N = 157	SCH. 6 N = 299
1. How much time do you spend per day preparing/ studying for your classes?	less than one hour	57.22	47.41	60.33	41.30	56.69	55.52
	between 1 and 3 hours	36.71	47.41	36.67	44.57	41.40	40.80
	between 3 and 5 hours	4.56	4.31	2.33	11.96	1.91	3.34
	more than 5 hours	1.52	0.86	0.67	2.17	0.00	0.33
	Chisq = 41.60		Sign.	0.001			
2. How does class preparation under block scheduling compare to traditional scheduling?	more prep. is required	39.13	42.24	21.01	31.52	30.52	28.43
	about the same prep.	41.43	42.24	45.71	46.74	38.31	42.14
	less prep. is required	19.44	15.52	33.28	21.74	31.17	29.43
	Chisq = 76.98		Sign.	0.001			
3. How would you describe the paperwork/homework involved with block scheduling?	more	48.22	65.52	23.33	41.30	46.15	28.96
	the same	30.15	21.55	36.00	27.17	25.64	31.31
	less	21.63	12.93	40.67	31.52	28.21	39.73
	Chisq =157.96		Sign.	0.001			
4. What impact has block scheduling had on grades?	grades tend to be higher	27.22	33.62	39.53	32.61	35.26	35.88
	grades are ab.the same	36.58	40.52	38.18	47.83	41.67	44.52
	grades tend to be lower	29.24	15.52	8.78	15.22	18.59	14.62
	not observed	6.96	10.34	13.51	4.35	4.49	4.98
	Chisq = 132.55		Sign.	0.001			
5. How has block scheduling affected the amount of material covered?	has increased the amt.	27.42	71.55	55.37	41.30	54.14	57.00
	amt. is about the same	30.99	18.97	32.21	19.57	31.21	26.00
	has decreased the amt.	41.58	9.48	12.42	39.13	14.65	17.00
	Chisq = 263.51		Sign.	0.001			
6. How has block scheduling affected attendance in your classes?	attend. has improved	29.68	38.79	22.53	34.07	28.66	42.28
	attend. is ab. the same	51.08	50.86	67.41	59.34	60.51	47.65
	attend. has declined	19.24	10.34	10.07	6.59	10.83	10.07
	Chisq. = 82.90		Sign.	0.001			

TABLE V (cont.)
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF STUDENTS BY HIGH SCHOOL

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY HIGH SCHOOL CLASSIFICATION					
		SCH. 1 N = 790	SCH. 2 N = 116	SCH. 3 N = 600	SCH. 4 N = 92	SCH.5 N = 157	SCH. 6 N = 299
7. How would you describe student behavior?	behavior has improved	8.32	23.28	27.62	15.22	18.59	30.54
	no change has occurred	52.24	64.66	59.69	75.00	66.67	54.70
	beh. has bec. more neg.	39.44	12.07	12.69	9.78	14.74	14.77
	Chisq. = 247.84		Sign.	0.001			
8. Overall, how would you rate block scheduling?	strongly in favor	8.72	7.76	29.01	20.65	20.25	20.00
	in favor	30.47	41.38	44.20	39.13	37.97	42.67
	indifferent	31.86	28.45	18.77	23.91	24.05	21.00
	against	14.66	9.48	3.75	15.22	10.13	9.00
	strongly against	14.29	12.93	4.27	1.09	7.59	7.33
	Chisq. = 223.57		Sign.	0.001			
9. The 90 minutes block time is	too much time on 1 subj.	54.35	46.55	30.68	35.87	43.51	32.11
	not aff. by lngth of time	21.48	20.69	17.97	15.22	19.48	23.08
	about the right amt. of time on each subject	24.17	32.76	51.36	48.91	37.01	44.82
	Chisq. = 134.26		Sign.	0.001			
10. Students' retention of information seems to have	increased	12.23	20.69	28.79	25.00	25.00	30.00
	remained the same	32.87	46.55	44.28	43.48	39.10	40.00
	decreased	37.58	14.66	10.27	15.22	16.67	11.67
	not observed	17.32	18.10	16.67	16.30	19.23	18.33
	Chisq. =217.44		Sign.	0.001			
11. How have clubs and extracurricular activities been affected?	int. and part. has imp.	2.57	6.96	26.98	16.48	21.94	20.27
	is about the same	17.22	45.22	57.39	54.95	45.16	41.55
	int. and part.has decl.	80.21	47.83	15.64	28.57	32.90	38.18
	Chisq. = 631.85		Sign.	0.001			

TABLE V (cont.)
RESULTS FROM BLOCK SCHEDULE SURVEY - FALL 96 DATA
A COMPARISON OF ATTITUDES OF STUDENTS BY HIGH SCHOOL

ITEM ANSWERED	CHOICES OF ANSWERS	PERCENTAGES BY HIGH SCHOOL CLASSIFICATION					
		SCH. 1 N = 790	SCH. 2 N = 116	SCH. 3 N = 600	SCH. 4 N = 92	SCH.5 N = 157	SCH. 6 N = 299
12. How has block schedule changed the classroom activities?	great. var. of tea. meth.	34.18	42.11	53.31	53.26	50.00	51.34
	no change	37.36	40.35	35.82	21.74	35.90	33.89
	less var. of tea. meth.	28.46	17.54	10.87	25.00	14.10	14.77
	Chisq. = 103.75		Sign.	0.001			
13. Which would you prefer?	six 55 minute classes	35.35	36.21	17.68	30.43	28.10	20.48
	four 90 minutes	64.65	63.79	82.32	69.57	71.90	79.52
	Chisq. =63.30		Sign.	0.001			
14. Who benefits from block scheduling?	students	12.21	11.30	19.66	17.58	18.71	18.98
	admin. and teachers	23.16	23.48	12.44	15.38	21.94	10.17
	everyone	37.40	52.17	61.34	54.95	46.45	60.68
	no one	27.23	13.04	6.55	12.09	12.90	10.17
	Chisq. = 202.64		Sign.	0.001			